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Writing for Clarity: A Concise Guide for Scientific Writing and Tips for Selecting a Journal

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Abstract

Scientific writing is very important for writing research articles or commentaries. This article provides practical tips for researchers and clinicians to write well. Empowered researchers would be able to disseminate their research findings, help change the clinical practice, and advance public health.

Keywords
- manuscript writing
- scientific writing
- writing tips

Introduction

Writing helps you communicate your research findings to the rest of the world. Publications have become an integral part of scientific or medical careers. With many candidates competing for leadership roles, the number of publications (unfortunately not the impact) is a major promotion criterion. Learning scientific writing is, hence, very important. However, for some individuals, the learning curve for scientific writing might be steep as scientific writing differs from the writing taught in schools. Also, it becomes another challenge for individuals with English as a second language (ESL). Hence, this article is written to defuse the fear among researchers when starting the journey of scientific writing and to empower them. This article takes inspiration from (1) Richard Feynmann, who used to explain complex concepts in simple form; (2) Shinya Yamanaka, whose research articles[1] (especially abstract) use simple sentences to report findings; and (3) Mimi Zeiger, the author of the book *Essentials of Writing Biomedical Papers*.[2]

There is no "good" scientific writing style. Clarity is important. You must make your message clear to the readers. There must not be any room for redundancy or a possibility of getting misunderstood. As different people have different styles, style is a second priority and could be developed later.

Manuscripts are rejected due to poor discussion or arguments, not due to "bad" English. The authors can easily improve the manuscript with the help of an English Language Service. However, such editing services seldom help the authors formulate a research question. The authors themselves must do this. Editors look for "good" research questions and check whether the authors achieved in answering the same through their study. Editors might consider a manuscript with "bad English" and a "good research question" rather than a manuscript with "good English" and a "wrong research question."

Thinking and Writing Clearly

People with clear thinking can write well. Interestingly, writing also helps improve your clarity of thought. Let us see how authors can work on arguments in their manuscripts. An argument must include a claim with evidence supporting it.[3] Brainstorming can help, and as an example, a previous research article[4] published in the *Indian Journal of Radiology and Imaging* was used:

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Burnout is common among interventional radiologists (**Claim**).

- *Less time spent with family leads to stress* (**Evidence 1**).
- *Occupation-related health problems can increase stress at the workplace* (**Evidence 2**).
- *More stress leads to burnout* (**Evidence 3**).

How can you say more stress leads to burnout?

- *According to the Yerkes–Dodson law, little stress can improve performance. However, increased stress can be detrimental to performance* (**Evidence 3a**).
- Your argument would then be: *Burnout is common among interventional radiologists because they have poor work–life balance and occupation-related health problems* (a claim supported by evidence). Such arguments would help during brainstorming and provide a possible explanation for your study findings.

►**Fig. 1** shows an example of brainstorming that could be used to build arguments for the article. The central part was the title and overall message of the article. The branches showed how the authors derived and concluded the main message. For each claim, the authors provided evidence and possible explanations. The authors later transformed the claims, evidence, and explanations into paragraphs. Using a similar strategy for your manuscript, in addition to using transition (or connecting) words, would help the reviewers follow your arguments easily. Also, you may provide alternate explanations for your findings and explain why you believe such an event would or would not be possible. Good reviewers love such alternate explanations. Remember, reviewers are busy people. You must strive to make their lives easier and persuade them to recommend "accept."

Practical Tips for the Writing Process

Preparation is vital for manuscript writing. If you allot a significant part of your time preparing for the writing, it will be far easier later. Allotment includes searching the literature for relevant publications, articles reporting findings that conflict with your conclusions, and reading the whole articles or their summaries. Several artificial intelligence (AI) powered apps are available right now that help summarize research articles and create notes (in case you want to improve your critical thinking and reading speed; in parallel, you may follow an old-school method[5]).

Authors, especially early researchers, can suffer from writer's block. Sticking to a particular time of the day for writing can do wonders. The Pomodoro technique[6] is also helpful (writing session for 25 minutes, taking a short break of 5–10 minutes after each session, and a long break of 20–30 minutes after four sessions). The writing does not have to be linear; you may write any section of the manuscript in case of writer's block.

After you have written your first draft, it must be kept aside for 1 to 2 days. Upon returning, you will find many mistakes in your draft using your "fresh and unfatigued" eyes. Furthermore, you may give your manuscript to your

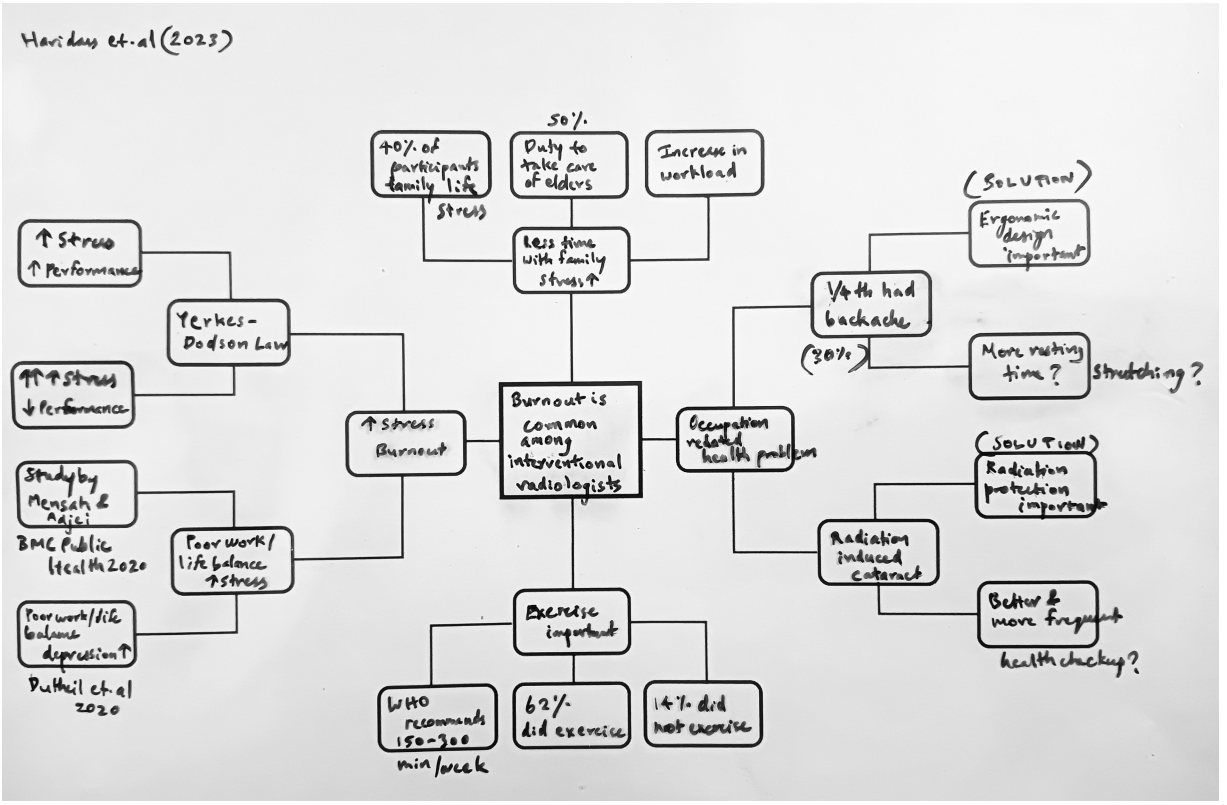

Fig. 1 A brainstorming template used to connect claims and evidence. This template is helpful for manuscript writing. A previous research article[4] published in *Indian Journal of Radiology and Imaging* was used as an example.

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friend who does not work in the same research field. If your friend can understand the overall message of the article, you can be sure your manuscript writing is clear. If not, do not trivialize your friend's constructive and critical comments, assuming your friend is not from your research field and does not understand the article well. Strive to clarify the manuscript's overall message, and you will go far.

Writing Concisely

> *"I have only made this letter longer because I have not had the time to make it shorter."*
>
> *–Blaise Pascal, Lettres provinciales (Letter XVI, 1657)*[7]

Brevity is an essential part of scientific writing. You must provide maximum details of your methods for reproducibility and be as concise as possible. This balance would help when writing the abstract of the manuscript. Many reviewers assess the quality of an abstract before accepting the invitation for manuscript review. *The Elements of Style*[8] by William Strunk and E.B. White is a beautiful guide for improving one's writing (freely available: https://archive.org/details/TheElementsOfStyle4thEdition).

Simple words are more powerful than complex words. Interestingly, some native speakers struggle with finding the correct word to express themselves and use a thesaurus. Hence, there is no need for researchers, especially ESL, to feel bad while using a thesaurus. *Roget's Thesaurus* is an excellent resource for writing manuscripts.

Research Question and Statistics

Research questions must pass the FINER criteria: feasible, interesting, novel, ethical, and relevant.[9] Some researchers assume that complex statistics are required to answer research questions. Many medical journals hire statistical reviewers to check the quality of the study designs. The complex and unnecessary statistical analyses would be red-flagged easily by seasoned statistical reviewers. In reality, the research question is more important.

Interestingly, in some cases, you can answer a good research question with simple statistics. For this, the researchers need to have a basic understanding of statistics. This knowledge would also help during interaction with statisticians while planning the study design.

Each statistical method has a set of assumptions, and the method used for data analysis must be decided before the study. Calculating the sample size before the study is also essential (after considering statistical power). Authors empower themselves and avoid statistical pitfalls by referring to excellent articles published previously.[10–12]

Filling the Gaps

The EQUATOR network (*https://www.equator-network.org/reporting-guidelines/*) is an invaluable resource for improving the quality of your manuscript. You can download the appropriate reporting guideline or checklist for your study type. For example, Consolidated Standards of Reporting Trials (CONSORT) is used for randomized trials, Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) for observational studies, Standards for Reporting of Diagnostic Accuracy (STARD) for diagnostic and prognostic studies, Consolidated Health Economic Evaluation Reporting Standards (CHEERS) for economic evaluation, and Consolidated Criteria for Reporting Qualitative Research (COREQ) for qualitative research. Using a checklist, you can fill the gaps in your manuscript, and thereby invite less criticism from the reviewers. It is also a good practice to imagine yourself being the reviewer and critically assess your manuscript. In this way, you can anticipate the reviewer's questions and discuss the study's possible limitations. With this practice, the reviewers would understand that the authors have good expertise on the research topic.

Selecting a Journal for Your Manuscript

Many publishers have provided options to search and select journals. Keywords or abstracts may be used as a search query on these web pages, for example, Journal Finder of Elsevier (https://journalfinder.elsevier.com/), Springer (https://link.springer.com/journals), and Wiley (https://journalfinder.wiley.com/). Another strategy the authors can use is checking their reference list to tally which journal has been cited the most.[13] In most cases, that journal would be the most aligned with the manuscript's research topic and the best option for submission.

Think of a journal that might consider your manuscript. But aim higher and try submitting your manuscript to another more prestigious journal (or the one with a higher impact factor). If your manuscript gets rejected, you can address the reviewers' comments and submit them to the journal you had thought of before. However, this strategy is not suggested if the manuscript deals with a hot research topic. It would take a longer time, and other research groups might publish it before you.

Do not worry if your manuscript gets rejected. Think a while about it. Scream about it. Spend a little time and move on. Think about how you can improve. Such an introspection will increase your resilience and later success.

Writing a Letter to the Editor or Commentary

Some authors are worried about the standard introduction, methods, results, and discussion (IMRAD) format followed by scientific journals. The IMRAD format might look very monotonous without any style. However, the format helps readers find the required information with ease. On the other hand, Letters to the Editor or Commentaries are excellent articles for unearthing your critical or creative side.

If the commentary is about an article published in the journal, you may point out the strengths and limitations of the study. Research articles are not perfect. They have limitations due to time constraints or funding issues. Do not mention the study's limitations, which are almost impossible to address considering cultural factors and low-resource settings (usually in low- and middle-income countries).

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If the commentary is not about a research article, early researchers are encouraged to develop new ideas for addressing various public health issues. Science is conservative. New ideas are always opposed as it helps science to prevent wild ideas.[14] Authors must research the topic, provide new perspectives and practical recommendations for policymakers, and initiate new debates. However, authors must not write a commentary for self-citations or agreement with a colleague to cite each other (unethically boosting one's h-index). Let young researchers become more confident in generating ideas and writing commentaries, which would help change clinical practice and advance public health. We need ideas from everyone.

Conclusion

As a baby learns to speak by imitating others, early writing skills can be developed by observing how others write. Think of any research article or commentary that impressed you. Analyze how the authors achieved their goals. After improving your writing over time (►**Table 1**), you can develop your style. Journaling is a great way to improve your writing skills. You will be able to express yourself, write "better articles," and generate new ideas. Your writing will improve—you need to be patient and persistent.

Table 1 Tips for better writing and journal selection

Writing
1. Use shorter sentences. Avoid sentences that could be misunderstood
2. Brainstorming template for better arguments and use transition words
3. The Pomodoro technique for writers' block
4. Aim to develop your writing over time
Selecting journal
1. Journal finder online tool of different publishers
2. Higher chance for consideration if the journal is more specialized
3. Select the journal most cited in the manuscript's references

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Conflict of Interest
This is a commissioned article. The author confirms sole responsibility for this article. Opinions expressed in the article do not express the views or opinions of the author's employer. The author does not have any other conflict of interest.

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